UNITED STATES PATENT AND TRADEMARK OFFICE

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10/767,075	01/30/2004	Zhichen Xu	200314632-1	6116

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EXAMINER
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ART UNIT	PAPER NUMBER
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NOTIFICATION DATE	DELIVERY MODE
08/12/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _09 June 2009_.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-14, 17, 19-27 and 31_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-14, 17, 19-27 and 31_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some *   c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

1.   This office action is in response to the communication filed on 06/09/2009.

2.   Claims 15, 16, 18 and 28-30 have been cancelled.

3.   Claims 1-14, 17, 19-27 and 31 are pending.

Response to Amendment

4.   The objection of the drawings has been withdrawn due to the amendment.

5.   The objection of claim 7 has been withdrawn due to the amendment.

6.   The 35 U.S.C. 101 rejection of claims 25-31 has been withdrawn due to

the amendment.

Response to Arguments

7.   Applicant's arguments on the 35 U.S.C. 101 rejection of claims 1-20 have

been fully considered but they are not persuasive. See the 35 USC § 101 section

below.

8.   Applicant's arguments on the 35 U.S.C. 112 rejection of claims 10 and 11

have been fully considered but they are not persuasive. See the 35 USC § 112

section below.

9.   Applicant's arguments on the 35 U.S.C. 103 rejection have been fully

considered but are moot in view of new ground(s) of rejection. For the

independent claims, applicant argues that the prior art fail to teach or render

obvious "the set of local landmark nodes are different than the set of global

landmark nodes" and "the set of landmark nodes are located in routing paths

between the node and the global landmark nodes." Consider the first point, a set

of nodes mathematically can mean zero or non-zero number of nodes including

one and therefore arguments based on a plurality of nodes are unpersuasive.

Also, that two set of nodes are different does not mean that members of the sets

are different. The two sets can be different for having common node members

and different node member(s). Consider the second point, that a local landmark

node is on routing paths between a node and a global landmark node does not

mean that the local landmark node is distinct from the node or the global

landmark node. The local landmark node can be the global node or the node

itself and still can considered to be on a routing path between the node and the

global landmark node. Also see citation in the 35 USC 103 rejections below.

10.   For claims 7, 12, 13, 17, 18, 30, the prior art clearly teaches utilizing

routers to be landmark nodes that responds to requests with ACKs identifying

themselves to the requesting node (Madruga, [0130])

Claim Rejections - 35 USC § 101

11.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or
> composition of matter, or any new and useful improvement thereof, may obtain a patent
> therefor, subject to the conditions and requirements of this title.

12.   Claims 1-20 are rejected under 35 U.S.C. 101 the claimed invention is

directed to non-statutory subject matter.

13.   Claim(s) 1-18 are rejected under 35 U.S.C. 101 as the claimed subject

matter does not fall within one of the four statutory categories of invention. While

the claims recite a series of steps or acts to be performed, a statutory "process" under 35 U.S.C. 101 must (1) be tied to particular machine, or (2) transform underlying subject matter (such as an article or material) to a different state or thing. See page 10 of In Re Bilski 88 USPQ2d 1385. The instant claims are neither positively tied to a particular machine that accomplishes the claimed method steps nor transform underlying subject matter, and therefore do not qualify as a statutory process.   The method including steps of ... is broad enough that the claim could be completely performed *mentally, verbally or without a machine nor is any transformation apparent*. For example, claim 1 recites three steps are feasibly performed mentally, such as determining a first distance and second distance, and determining the location for a node based on the two distances. A method of determining *location information for a computer* does not necessarily require that the method is implemented by a computer, since the steps can still be done mentally for determining *location information for a computer* without a machine.

14.   For claims 19-20, consider claim 19, the claim is related to a machine (a node). However, the means for carrying out steps in the claim body are understood and possibly be read as *software modules or software tools* for carrying out those steps, given that no explicit hardware embodiments of these modules can be found in the specifications. Therefore, the claims are directed to software tools or modules per se or non-statutory subject matter.

Claim Rejections - 35 USC § 112

15.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

16.   Claims 1, 10, 11, 17, 19, 21, 25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

17.   Claim 1 recites "the *set of landmark nodes* are located in routing paths between the node and the global landmark nodes". It is vague what set of landmark nodes applicant is referring to. Claims 19, 21, 25 are rejected for the same rationale.

18.   Claims 10-11 recite "randomly selecting a predetermined number of nodes." This can mean no selection at all, making the claims vague since a predetermined number of nodes can be zero and the method is tied to local nodes or global nodes only. The claim recites "selecting a predetermined number of nodes," which does not necessarily require the predetermined number to be greater than zero. Correction is required.

19.   For claim 17, some of the local landmark nodes can mean an unknown number of local landmark nodes (definition of "some" from Merriam-Webster dictionary) and possibly can be zero, or some unknown quantity and therefore making the claim vague.

Claim Rejections - 35 USC § 103

20.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for

all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described
> as set forth in section 102 of this title, if the differences between the subject matter sought to
> be patented and the prior art are such that the subject matter as a whole would have been
> obvious at the time the invention was made to a person having ordinary skill in the art to which
> said subject matter pertains. Patentability shall not be negatived by the manner in which the
> invention was made.

21.   Claims 1-6, 8-11, 14, 19-27 and 31 are rejected under 35 U.S.C. 103(a) as

being unpatentable over Sarkar et al. (US 6,937,569, hereafter Sarkar), in view of

Xu et al. (Building Topology-Aware Overlays using Global Soft-State, hereafter

Xu).

22.   For claim 1, Sarkar discloses a method of determining location information

for a node in a network, the method comprising:

determining first distances from the node to a set of global landmark

nodes and determining location information for the node based on the first

distances (fig. 3, col. 6 lines 1-37, find distance calculated based on metrics such

as network round trip time from a node to landmark 170—global landmark);

determining second distances from the node to a set of local landmark

nodes proximally located to the node (fig. 3, col. 6 lines 16-44, find distance from

a node to landmark 160--local landmark closer to the node); wherein the set of

local landmark nodes are different than the set of global landmark nodes (fig. 3,

two different landmarks) and the set of landmark nodes are located in routing

paths between the node and the global landmark nodes (fig. 3, landmark 1 on routing path from the node to landmark 2); and

Sarkar does not explicitly disclose determining location information for the node based on the first distance and the second distance.

However, Xu discloses determining proximity information for the node based on the first distance and the second distance (page 1, right col., last par.; p.2, left col., first to fourth bullet point, generate proximity information of a node based on measurements of distances in terms of round trip time (RTTs) to multiple landmark nodes).

It would have been obvious for one skilled in the art at the time of the invention to combine the teachings of Sarkar and Xu to identify location information of a node because proximity information of a node can be used to locate the node in a network both efficiently and accurately (Xu, abstract)

23.   For claims 19, 25, the claims are rejected for the same rationale as in claim 1.

24.   Claim 21 is rejected for the same rationale as in claim 1. Sarkar-Xu further discloses peer-to-peer network distance measurement (see, Sarkar, fig. 3, col. 6 lines 1-37, find network distance, Xu, abstract, peer-to-peer)

25.   For claim 2, Sarkar-Xu further discloses determining location information comprises determining location information associated with a physical location of

the node in the network based on the first distance and the second distance (Xu, section 5 par. 2, section 5.1 par. 3-5, physical location of a node shown by landmark number is generated).

26.   For claim 3, Sarkar-Xu further discloses determining location information comprises generating a landmark vector including the first distance and the second distance (Xu, section 5 par. 3-4, landmark vector).

27.   For claim 4, Sarkar-Xu further discloses transmitting the landmark vector to at least one other node in the network storing landmark vectors for a plurality of nodes in the network (Xu, section 5.1 par. 2; page 5, right col., last par., publishing and storing map of proximity information at nodes).

28.   For claim 5, Sarkar-Xu further discloses hashing at least a portion of the landmark vector to identify a location in an overlay network for storing the landmark vector (Xu, p. 5, right col., par. 2, fig. 8, hashing landmark vector to a target region in overlay space), wherein the overlay network is a logical representation of the network (Xu, p. 5, right col., par. 2, overlay); and transmitting the landmark vector to a node at the identified location to store the landmark vector (Xu, fig. 8, node p').

29.   For claim 6, Sarkar-Xu further discloses determining first distances from the node to the set of global landmark nodes comprises: transmitting a probe

packet to each global landmark node; and measuring round-trip-time to each

global landmark node using the transmitted probe packet (Xu, section 5.1, par. 3,

latency to from a node to landmarks, section 4, par. 4 and 5, round trip time).

30.   For claim 8, Sarkar-Xu further discloses determining second distances

comprises: selecting a plurality of the local landmark nodes within a

predetermined distance from the node; and determining distances to each of the

plurality of local landmark nodes (Xu, 5.4 par. 4, localized landmarks are selected

to measure distances).

31.   For claim 9, Sarkar-Xu further discloses selecting a predetermined

number of nodes in the network to be global landmark nodes and local landmark

nodes based on the number of nodes in the network (Xu, p. 6 table 2, number of

landmarks).

32.   For claim 10, Sarkar-Xu further discloses selecting a predetermined

number of nodes in the network to be global landmark nodes comprises

randomly selecting a predetermined number of nodes in the network to be global

landmark nodes (Xu, 5.1, par. 3).

33.   For claim 11, Sarkar-Xu further discloses selecting a predetermined

number of nodes in the network to be local landmark nodes comprises randomly

selecting a predetermined number of nodes in the network to be local landmark

nodes (Xu, 5.1, par. 3).

34.   For claim 14, Sarkar-Xu further discloses determining the first distances

comprises determining distances to all of the global landmark nodes in the

network (Xu, 5.1, par. 3).

35.   For claim 20, Sarkar-Xu further discloses means for identifying a location

in an overlay network for storing the location information using the location

information, wherein the overlay network is a logical representation of the

network; and means for transmitting the location information to a node at the

identified location to store the location information (Xu, section 5.1, par. 4 and 5,

fig. 8, store location information of node p at region z of the overlay or map).

36.   For claim 22, Sarkar-Xu further discloses the memory is operable to store

location information for a plurality of nodes in the peer-to-peer network that are

physically close to the computer system (Xu, 5.1, par. 4).

37.   For claim 23, Sarkar-Xu further discloses the processor is operable to

identify a location in an overlay network for storing the location information using

the location information, wherein the overlay network is a logical representation

of the peer-to-peer network (Xu, 5.1, par. 4, logical overlay).

38.   For claim 24, Sarkar-Xu further discloses a network interface operable to

connect the computer system to the peer-to-peer network, wherein the computer

system is operable to transmit the location information to the identified location in

the overlay network via the network interface (Xu, 5.1, par. 2, all nodes in a

region have access to the map, network interface is inherently used to

communicate between nodes)

39.   For claim 26, Sarkar-Xu further discloses instructions performing:

identifying a location in an overlay network to store the location information using

the location information, wherein the overlay network is a logical representation

of the network (Xu, fig. 8, overlay or map).

40.   For claim 27, the claim is rejected for the same rationale as in claim 5.

41.   For claim 31, Sarkar-Xu further discloses the local landmark nodes are

located within a predetermined distance to the node (Xu, 5.1, par. 2, nodes in a

logical region have same proximity to each other).

42.   Claims 7, 12, 13, 17 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Sarkar-Xu, in view of Madruga et al. (US 2001/0034793,

hereafter Madruga).

43.   For claim 7, the claim is rejected as in claim 6. Sarkar-Xu does not

disclose determining second distances from the node to the set of local landmark

nodes comprises receiving an acknowledge message from each local landmark node receiving the probe packet.

However, Madruga discloses the same ([0130], a router in a request path can be used as a landmark and sends back an ACK)

Sarka-Xu-Madruga further discloses:

determining the second distance to the at least one local landmark node in response to receiving the acknowledge message (Xu, section 5.1, par. 3, latency to from a node to landmarks, section 4, par. 4 and 5, round trip time or RTT of Xu can be used to calculate network distance upon receiving ACK)

It would have been obvious for one skilled in the art at the time of the invention to combine the teachings of Sarkar-Xu and Madruga to measure network distances to intermediate nodes and use them to estimate a node's location for better accuracy.

44.   For claim 12, Sarkar-Xu does not disclose selecting a predetermined number of nodes in the network to be local landmark nodes comprises: identifying nodes located near at least one gateway router or including the at least one gateway router in the network; and selecting at least one of the identified nodes to be a local landmark node However, Madruga discloses using routers as a landmark in a peer-to-peer network ([0130]). It would have been obvious for one skilled in the art at the time of the invention to use a router as a local landmark to simplify network topology.

45.   For claim 13, Sarkar-Xu-Madruga further discloses a number of global landmark nodes in the network is less than a number of local landmark nodes in

the network (Madruga, [0130], each path to global landmark has many local

landmarks (routers)).

46.   For claim 17, Sarkar-Xu-Madruga further discloses the plurality of local

landmark nodes includes a plurality of routers in the routing path between the

node and the at least one global landmark node (Xu, section 6, par. 2, routers,

Madruga, [0130], routers as landmarks).

Conclusion

47.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of

time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire

THREE MONTHS from the mailing date of this action. In the event a first reply is

filed within TWO MONTHS of the mailing date of this final action and the advisory

action is not mailed until after the end of the THREE-MONTH shortened statutory

period, then the shortened statutory period will expire on the date the advisory

action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be

calculated from the mailing date of the advisory action. In no event, however, will

the statutory period for reply expire later than SIX MONTHS from the mailing

date of this final action.

48.   Any inquiry concerning this communication or earlier communications from

the examiner should be directed to Hieu T. Hoang whose telephone number is

571-270-1253. The examiner can normally be reached on Monday-Thursday, 8

a.m.-5 p.m., EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Follansbee can be reached on 571-272-3964. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

HH

/Kenny S Lin/
Primary Examiner, Art Unit 2452